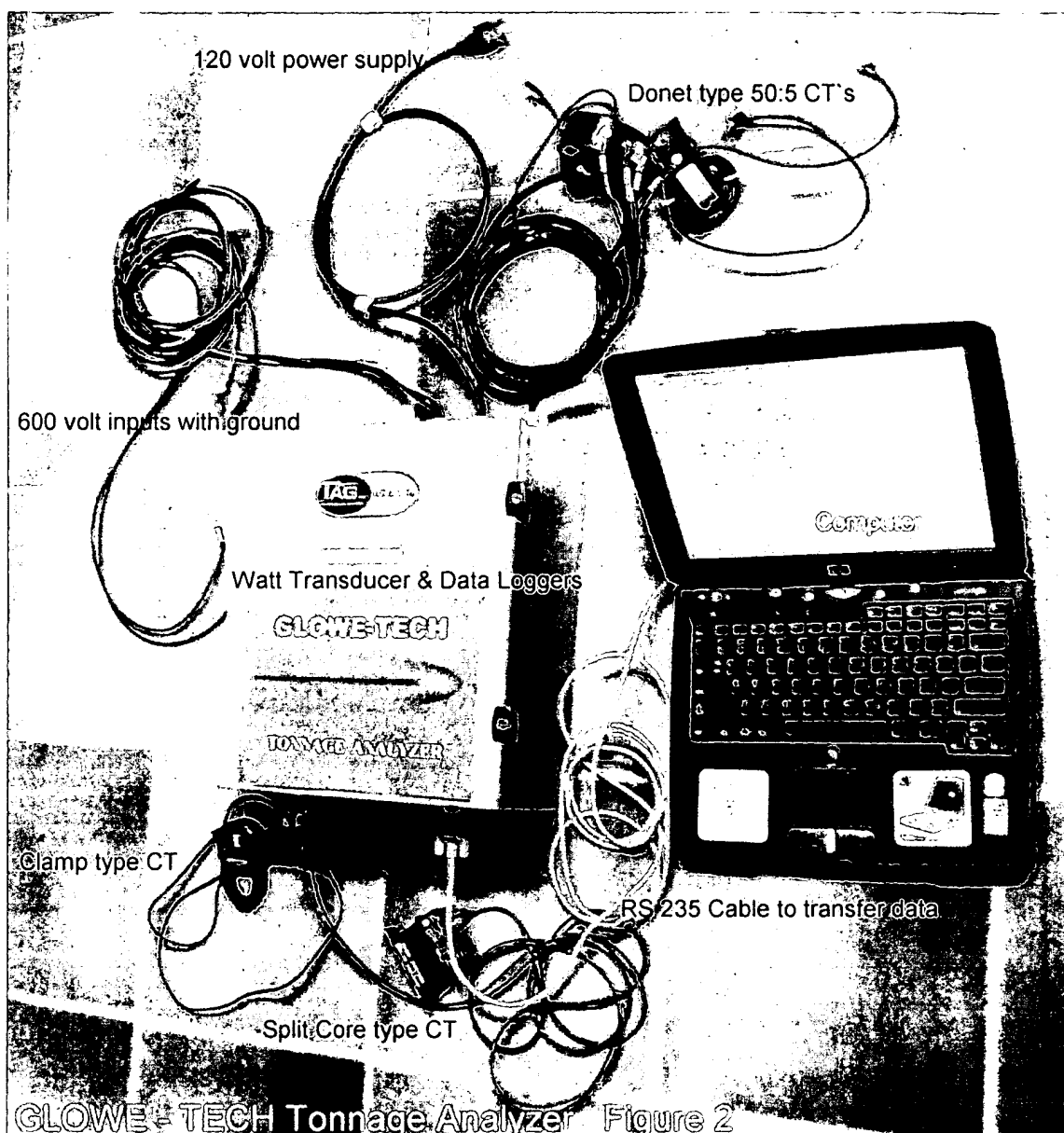


FIGURE 1

Typical set-up with computer recording live data converted to tonnage with belt scale monitor (top unit) showing actual tonnage moving over conveyor

FIGURE: 2



- Item 1: 600 volt input wires for line 1, 2 & 3 for watt transducer & ground wire
- Item 2: Donut type 50:5 CT's for current input to watt transducer
- Item 3: 120 volt power supply wire for watt transducer
- Item 4: Clamp type CT for ampere method to collect data for tonnage conversion
- Item 5: Split-Core CT for ampere method to collect data for tonnage conversion
- Item 6: Instrument case with Watt Transducer installed
- Item 7: Instrument case with ACR Data logger installed
- Item 8: RS235 Cable to transfer data to computer
- Item 9: Lap-top computer to collect data
- Item 10: Screen showing live data and for display of Real-Time graph of data in Tonnes converted from kilowatts or amps

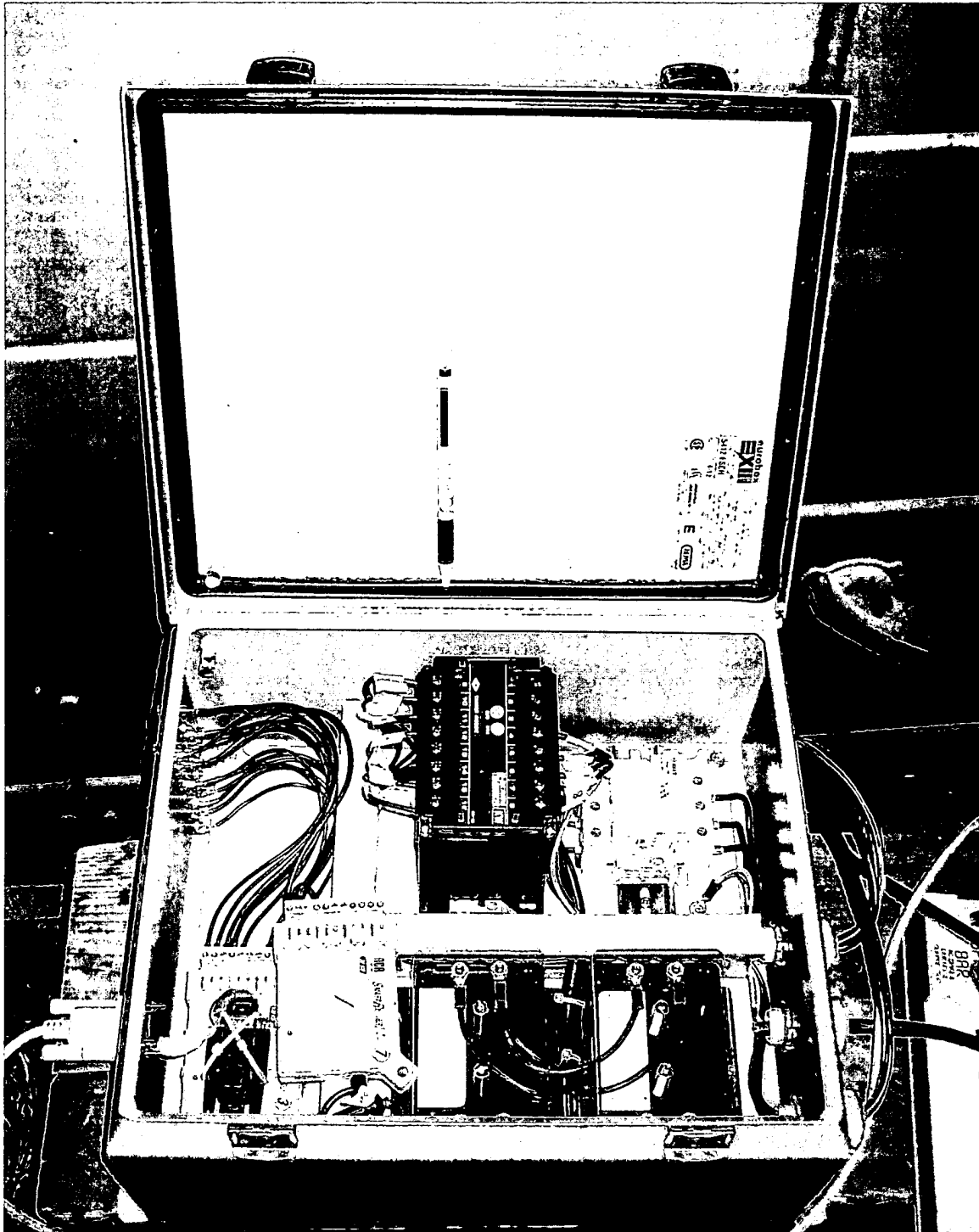


FIGURE 3:

GLOWE-TECH Tonnage Analyzer – Portable model with 2 Data Loggers capable of monitoring up to a total of 14 conveyor motors

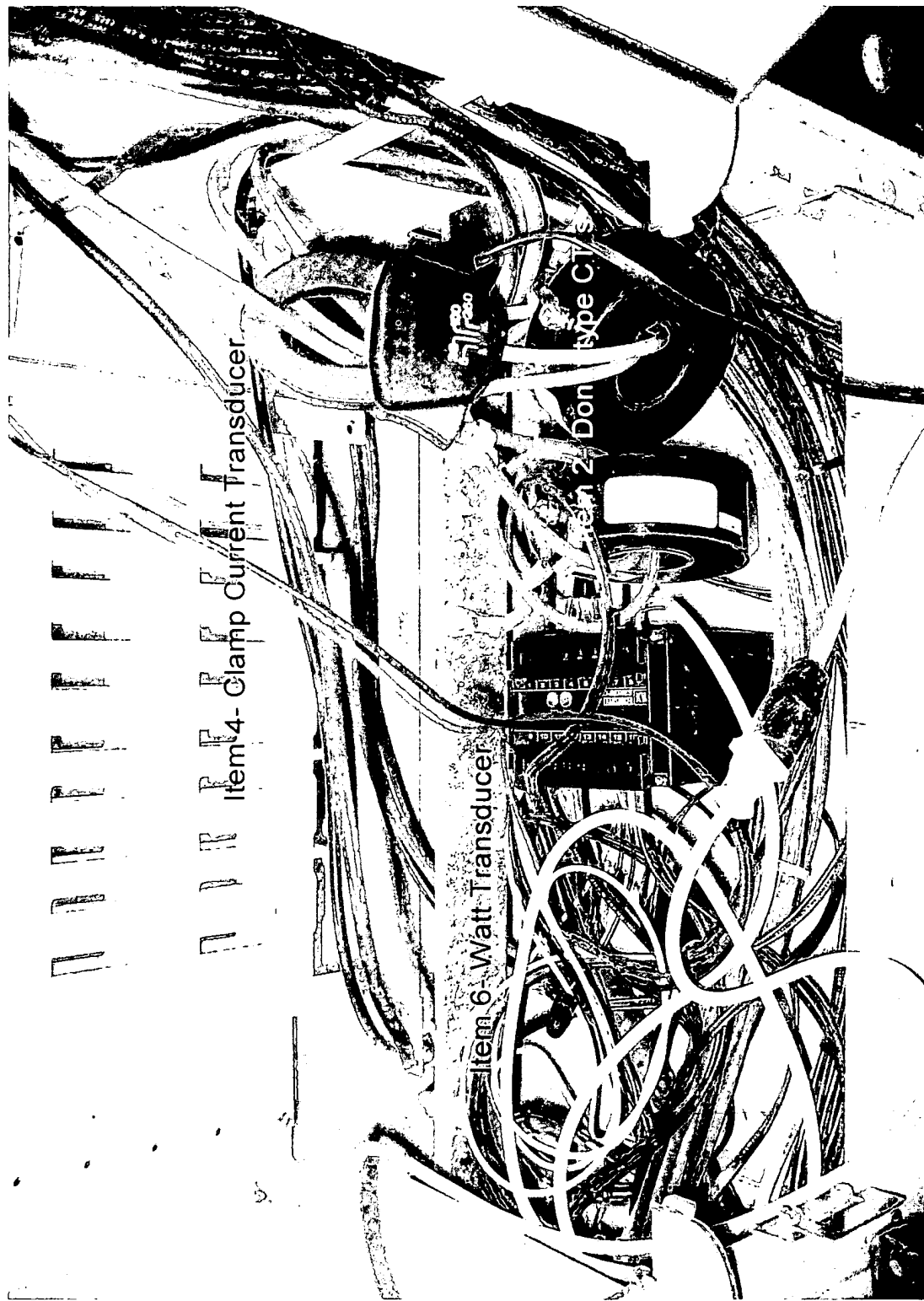


FIGURE 3b: Watt Transducer installation for Typical Conveyor Motor showing Clamp CT installed too

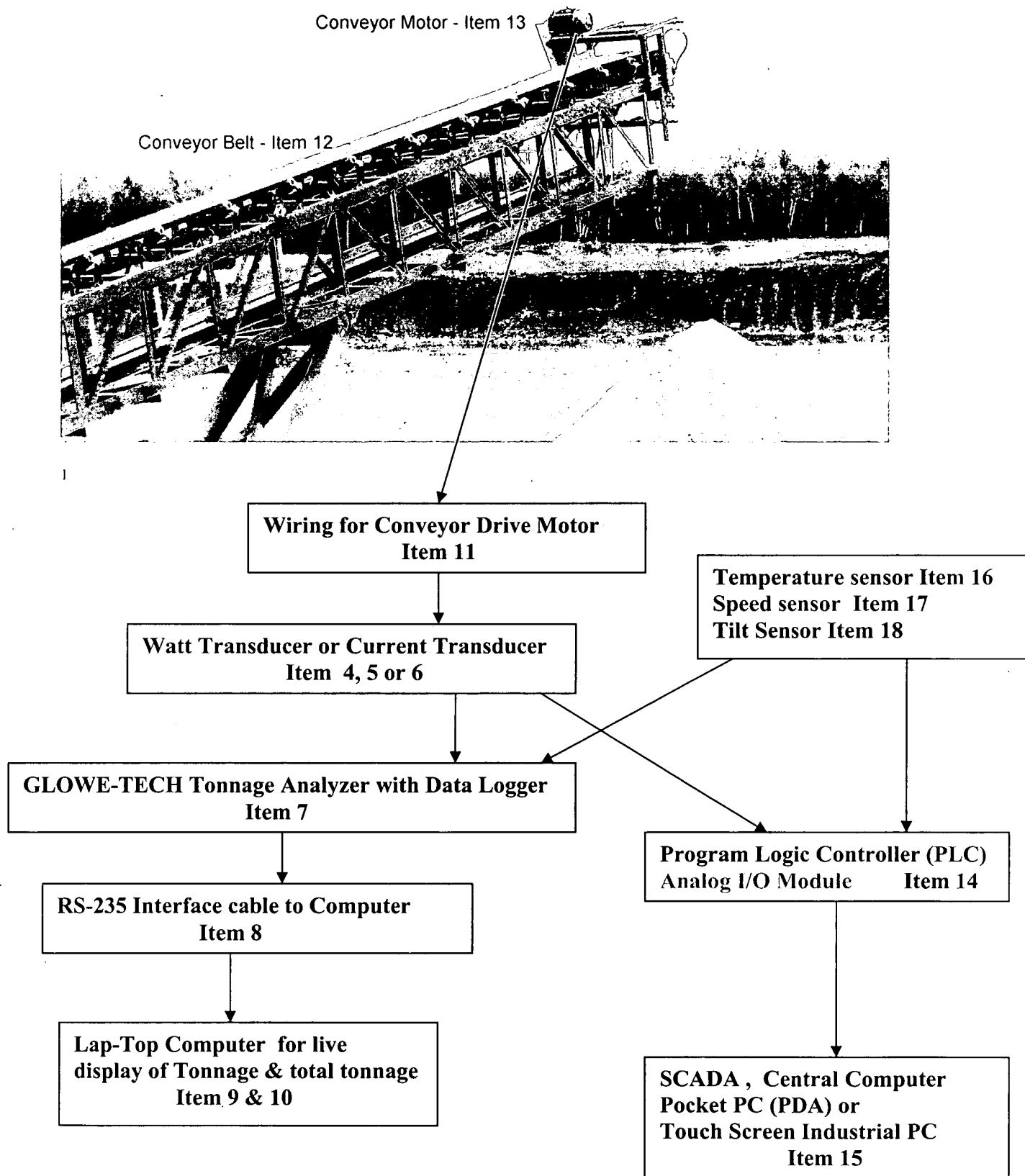


FIGURE: 4 Schematic of Typical Conveyor Belt Motor Tonnage Conversion

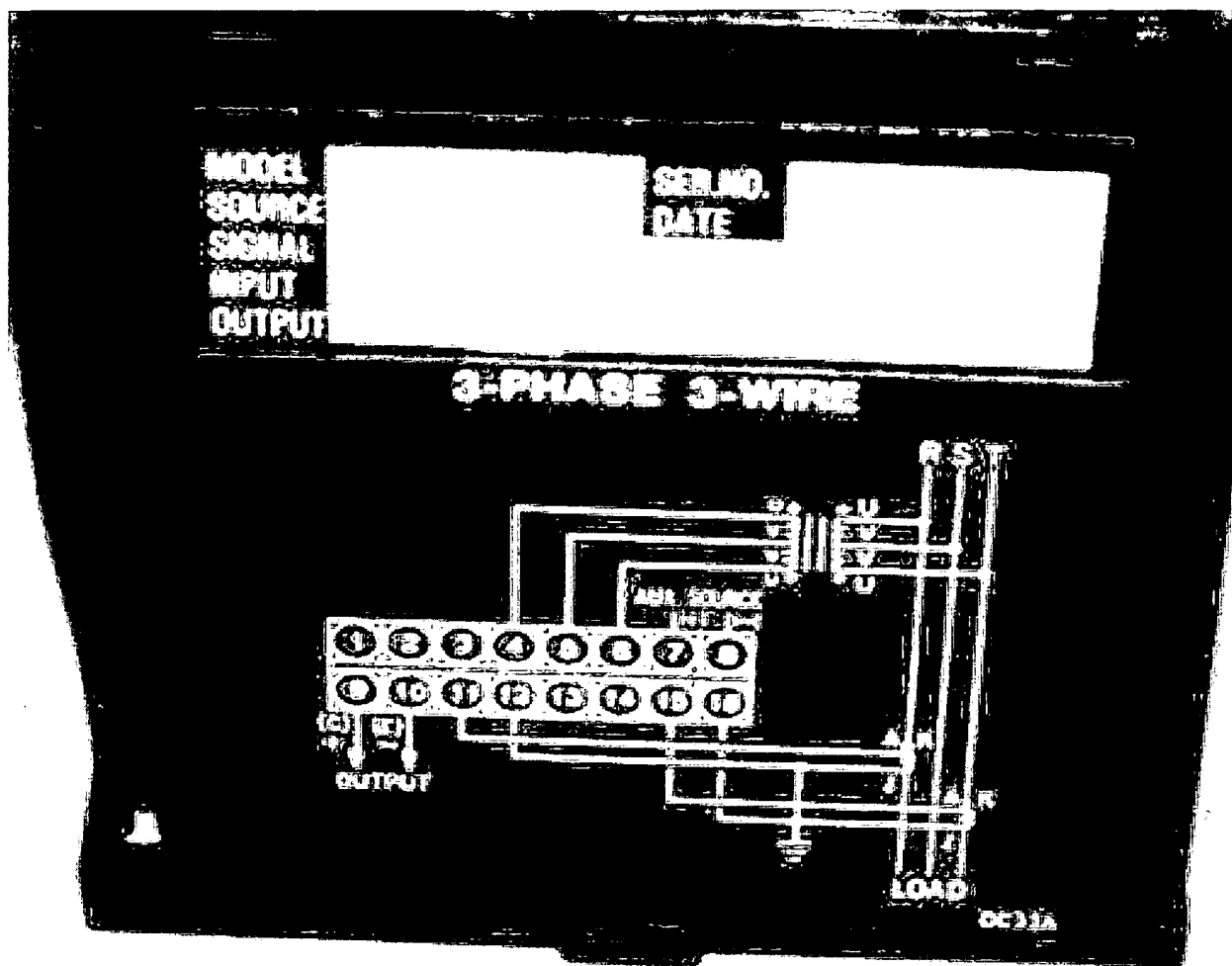
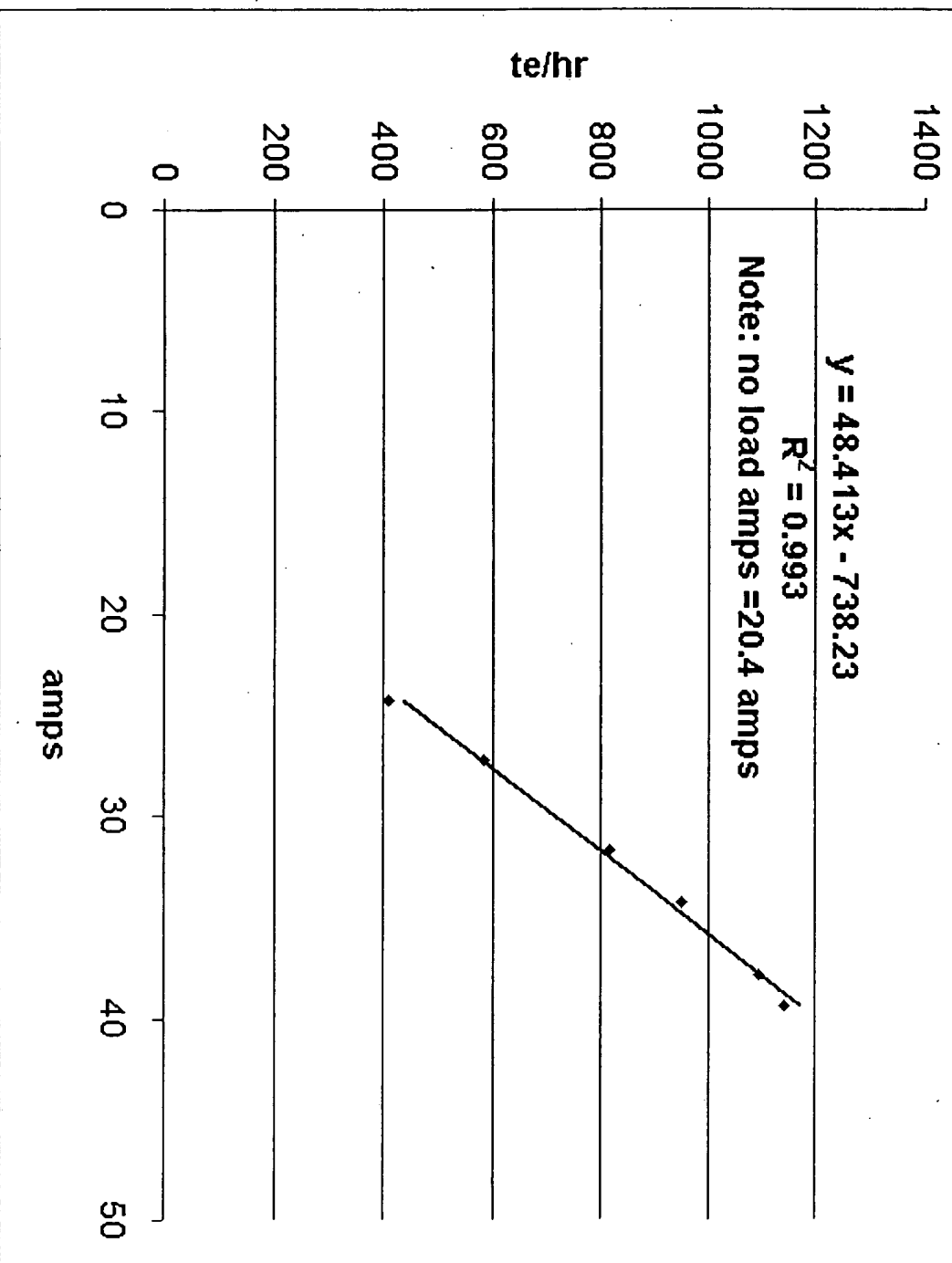


FIGURE: 5

GLOWE-TECH Typical wiring diagram for Watt Transducer

Graph amps to tonnes Figure: 6



Kwatts to tonnes Figure 7

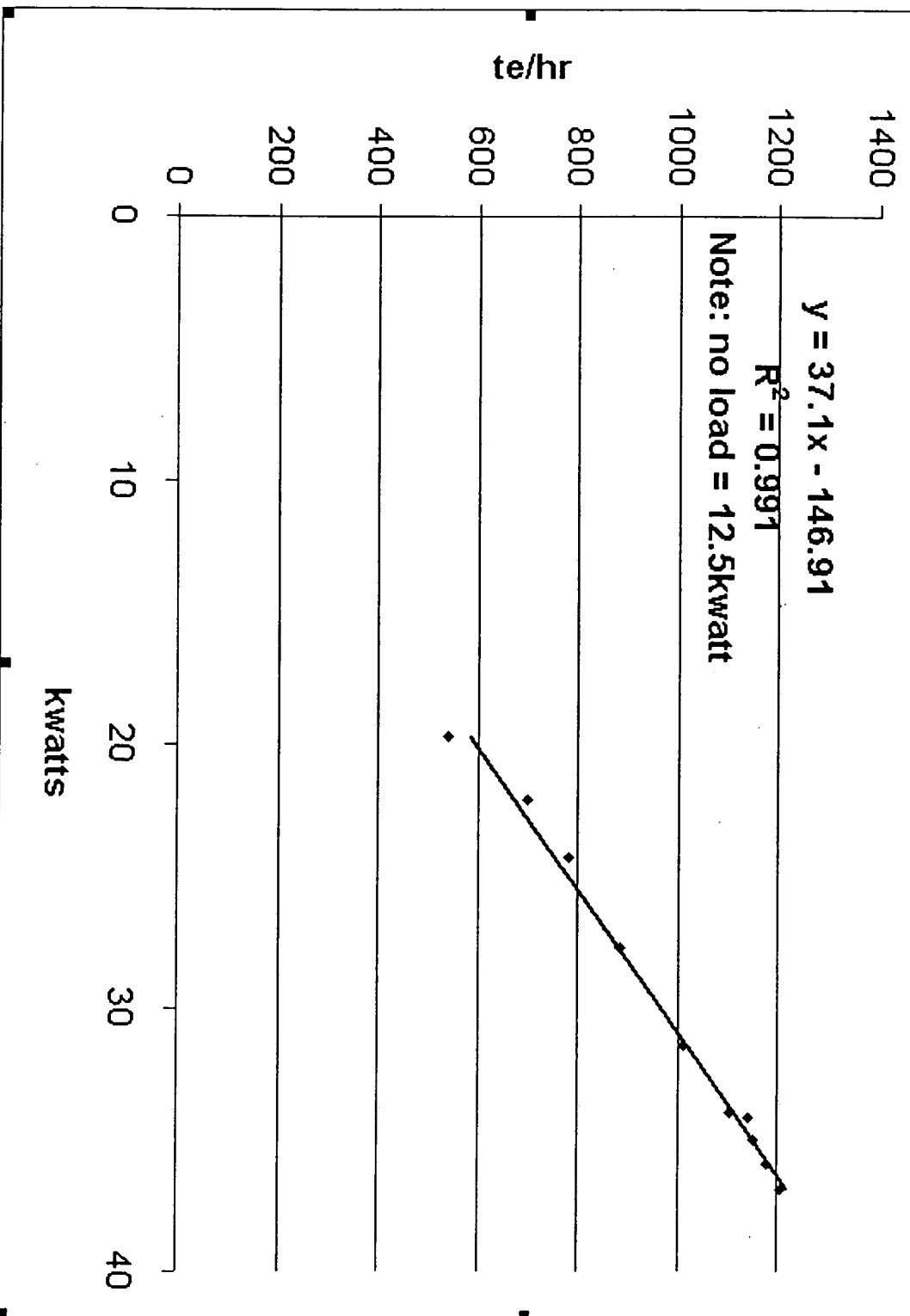


FIGURE: 8

Summary of Tonnage for Typical Conveyor using kwatts to tonnes

Date	Truck Count	actual Belt Scale tonnes	Corrected Belt Scale tonnes	kwatts conversion to tonnes	difference tonnes	amps conversion to tonnes	difference tonnes
April 15,02	126	6474.10	6474.10	6470.914	3.19	0	0
April 16,02	185	9552.40	9552.40	9404.079	148.32	9676.29	-123.89
April 17,02	145	7730.90	7730.90	7499.33	231.57	7753.309	-22.41
April 18,02	180	9451.50	9539.50	9412.356	127.14	9638.428	-98.93
April 19,02	166	8560.00	8665.00	8553.628	111.37	8737.455	-72.45
April 22,02	173	9138.00	9386.15	9447.105	-60.96	9465.383	-79.24
April 23,02	197	10453.00	10692.49	10717.322	-24.84	10323.369	369.12
April 24,02	159	7982.00	7982.00	8125.574	-143.57		
April 25,02	163	3705.00	3738.90	3773.876	-34.98		
April 26,02	164	8537.00	8757.00	8933.782	-176.78		
April 29,02	149	8150.00	8346.70	8418.175	-71.47		
April 30,02	156	8272.00	8482.00	8504.899	-22.90		
May 1,02	191	9901.00	10123.00	10138.142	-15.14		
May 2,02		10552.90	10758.00	10777.447	-19.45		
TOTAL		118459.80	120228.13	120176.629	51.50		

NOTE: Belt Scale tonnage was corrected for tonnage being added from April 18 to April 24th then taking off tonnage due to removal of rock end April 24 which had fallen on belt scale

NOTE: Apr 24 to May 2 scale was taking tonnes from scale display at 15 to 25 te/hr

NOTE:kwatt calibration formula used as per graph is $37.1x - 146.91$ for all readings April 15 to May 2

NOTE: Amp calibration formula used as per graph is $48.413x - 738.13$ for all readings

FIGURE 8b

Comparison Table showing difference in GLOWE-TECH Analyzer Readings with Milltronics Belt Scale Readings

Date	Operating Time hours	No-Load time hours	Start-Up time hours	Production time-hours	Milltronics tonnes	GT Analyzer tonnes	Difference tonnes	difference %
06-May-02	7.367	1.813	0.064	5.490	2830.000	2769.730	60.270	2.13
07-May-02	10.930	2.176	0.196	8.558	4374.000	4377.165	-3.165	-0.07
08-May-02	7.117	1.796	0.027	5.294	2791.000	2776.820	14.180	0.51
09-May-02	6.830	1.187	0.116	5.527	3119.500	3096.503	22.997	0.74
10-May-02	10.650	1.242	0.044	9.364	4494.000	4531.777	-37.777	-0.84
13-May-02	10.430	7.158	0.007	3.265	1845.900	1888.235	-42.335	-2.29
14-May-02	8.817	5.402	0.031	3.384	1866.000	1866.000	0.000	0.00
15-May-02	10.867	1.502	0.080	9.285	4659.000	4680.243	-21.243	-0.46
16-May-02	11.033	2.380	0.011	8.642	4563.000	4582.861	-19.861	-0.44
17-May-02	9.067	1.620	0.009	7.438	3799.000	3761.421	37.579	0.99
20-May-02	8.967	1.389	0.009	7.569	3792.000	3791.384	0.616	0.02
21-May-02	10.883	1.778	0.009	9.096	4226.000	4199.993	26.007	0.62
22-May-02	10.750	1.620	0.138	8.992	3925.000	3921.740	3.260	0.08
23-May-02	7.880	1.311	0.009	6.560	3261.000	3206.395	54.605	1.67
TOTAL					49545.400	49450.267	95.133	

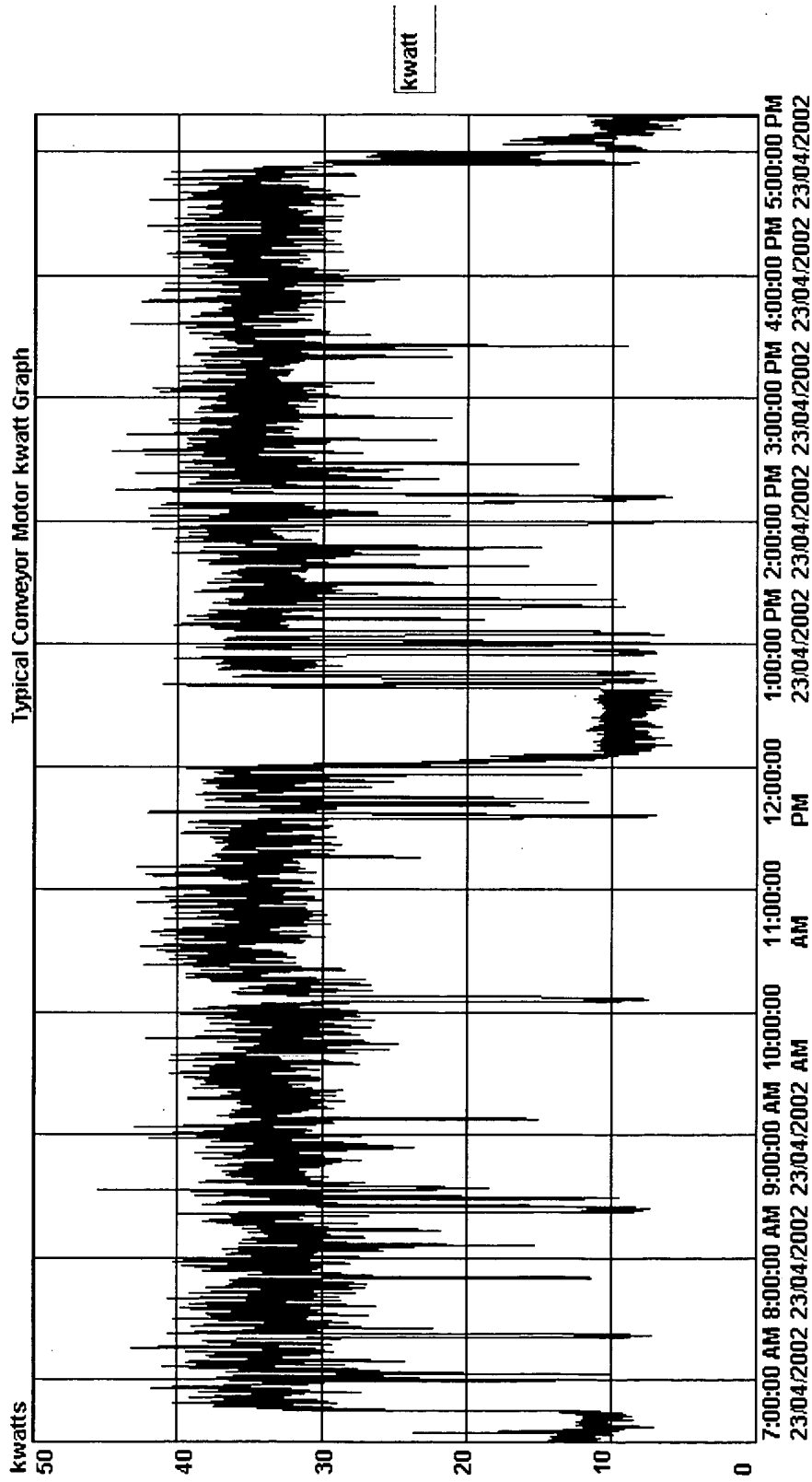


FIGURE: 9 kilowatt graph

TYPICAL Quarry Kwatts Converted to Tonnage Summary report

[illegible]

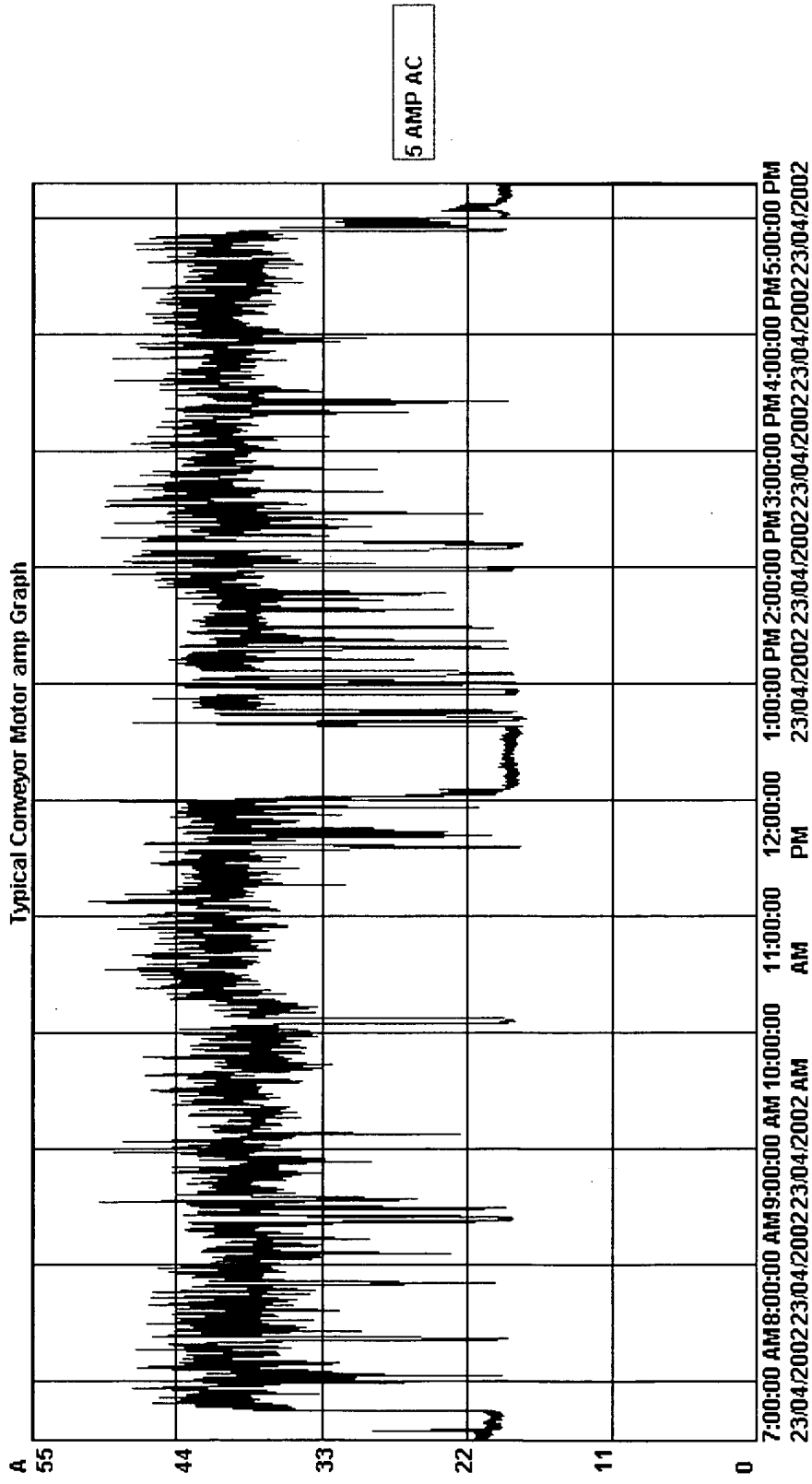


FIGURE: 11 ampere Graph

TYPICAL Quarry Amps to tonnage Summary Feb 12, 2003

FIGURE 12

Temperature am 9.000 degrees C
 Temperature pm 15.000 degrees C

am	9.000
pm	15.000

No load current = 25.000
 Start up current = 80.000

Time no load amps 69.33 minutes 1.156 hours
 Time at start-up amps 5.87 minutes 0.098 hours
 Total Recording Time 11.709 hours 10.553 total hr production
 Average current for day = 66.787 amps
 Average Tonnage by formula = 496.592 tonnes
 Total tonnes by Instrument 5240.756 tonnes
 Total tonnes by scale 5184.000 tonnes
 Difference -56.756 tonnes

5240.7003 tonnes totalized
 -56.7003 tonnes

		Count >		Tons/ hour on		Tons/hr on conveyor
Time of reading	Actual Amps	Count no load	Count no startup Amps	Conditioned Amps	Tons/ hour on conveyor	
12/02/2003 6:00:04	20.30774	1	0	0		
12/02/2003 6:00:12	20.26378	1	0	0		
12/02/2003 6:00:20	20.26378	1	0	0		
BREAK						
12/02/2003 17:41:00	60.22648	0	0	60.226	428.974	0.9533
12/02/2003 17:41:08	59.25929	0	0	59.259	419.006	0.9311
12/02/2003 17:41:16	60.71008	0	0	60.710	433.959	0.9644
12/02/2003 17:41:24	60.00667	0	0	60.007	426.709	0.9482
12/02/2003 17:41:32	56.31374	0	0	56.314	388.646	0.8637
12/02/2003 17:41:40	52.79667	0	0	52.797	352.395	0.7831
12/02/2003 17:41:48	46.77369	0	0	46.774	290.316	0.6451
12/02/2003 17:41:56	42.99284	0	0	42.993	251.347	0.5585
12/02/2003 17:42:04	37.45346	0	0	37.453	194.253	0.4317
12/02/2003 17:42:12	32.52956	0	0	32.530	143.502	0.3189
12/02/2003 17:42:20	27.60566	0	0	27.606	92.752	0.2061
12/02/2003 17:42:28	24.57219	1	0	0		

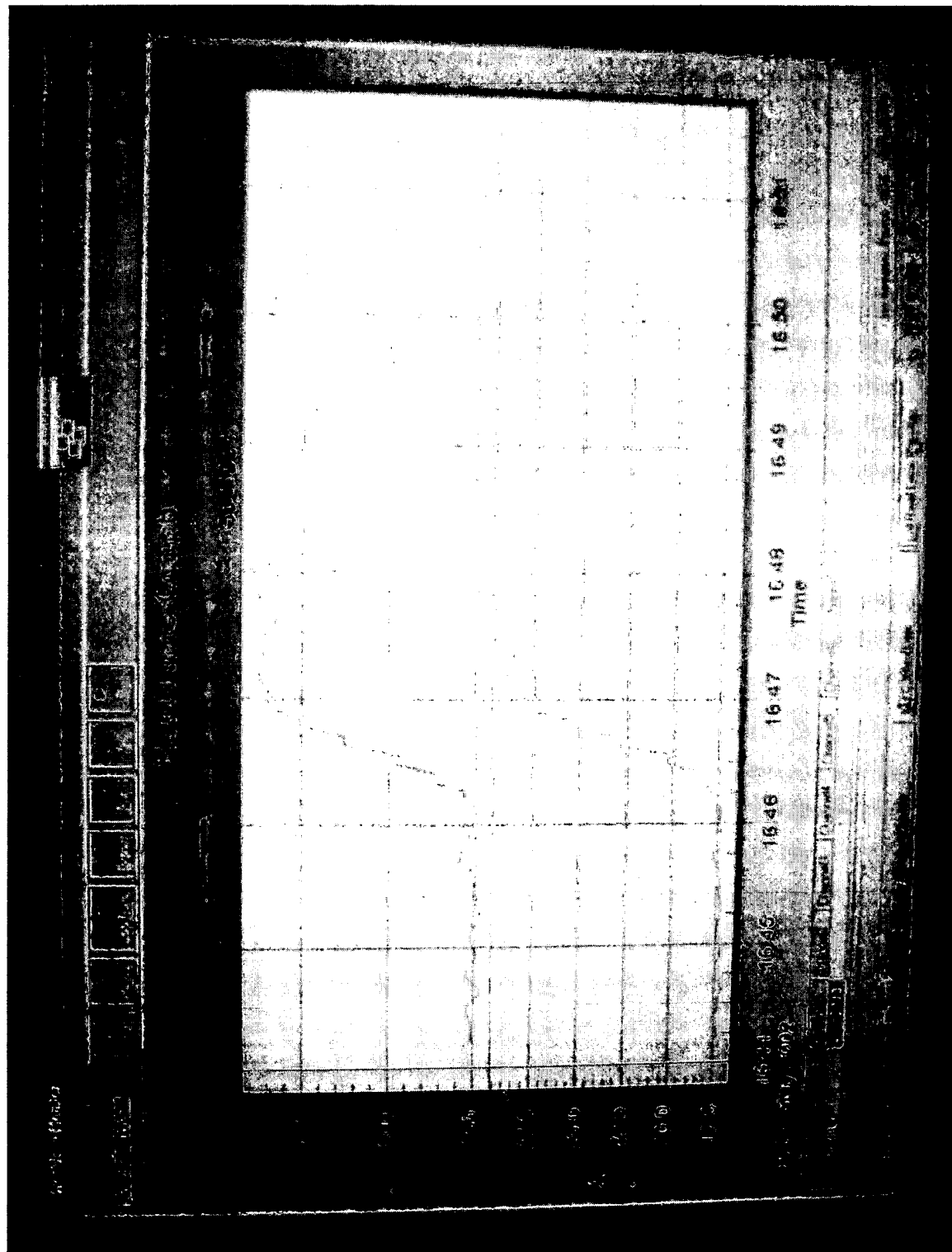


FIGURE 13a: - Typical Real Time Graph showing te/hr converted from Watt Transducer and a Real Time Graph of Amperage readings from the same Conveyor motor for parallel conversion to Tonnage for demonstration purposes.

[illegible]

Figure 13b Typical Daily Summary Table with Stable No-Load reading

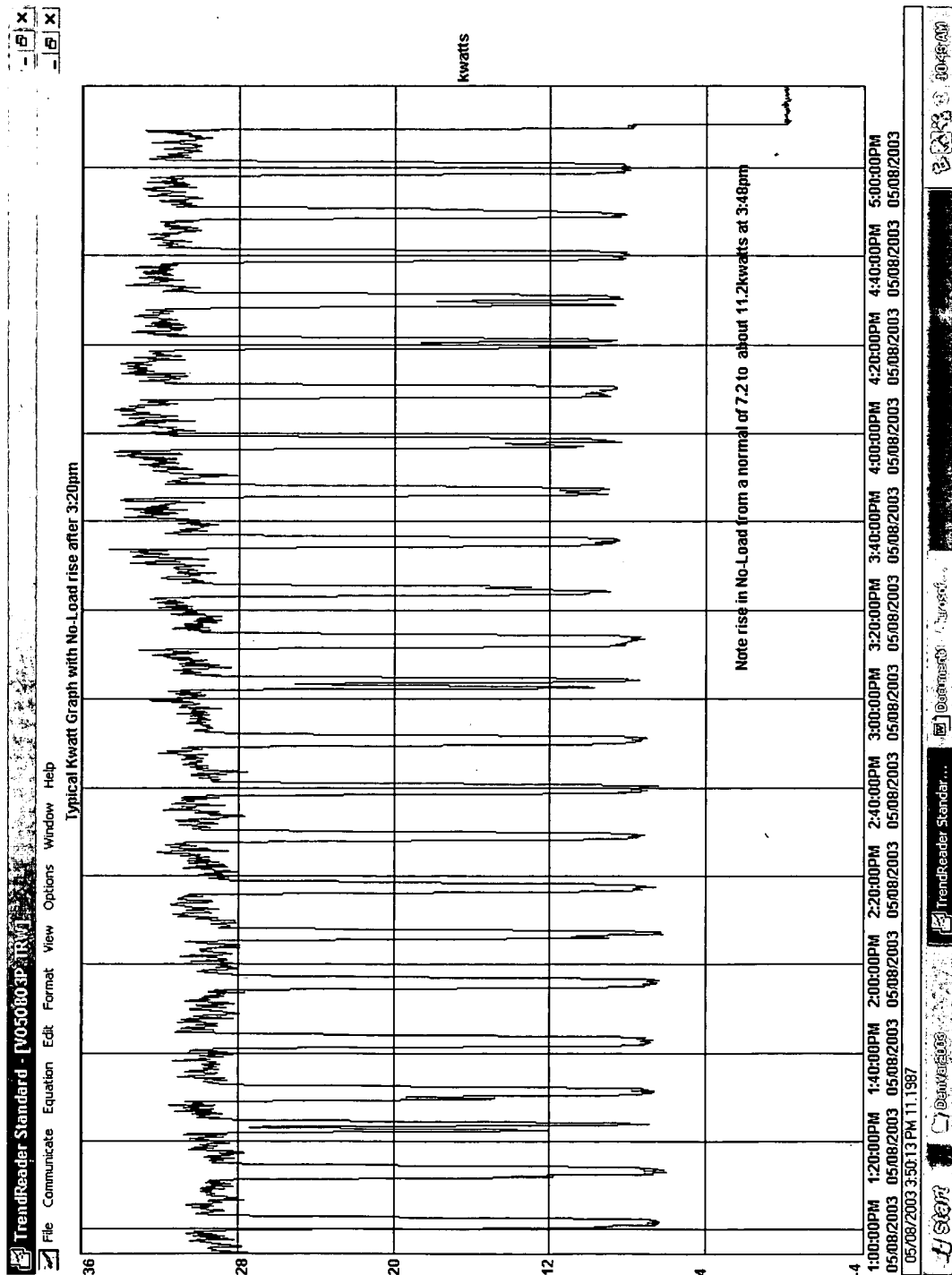


Figure 13e Enlarged view of change in No-Load readings caused by friction on Return Conveyor belt

File Edit View Insert Format Tools Data Window Help												
A	B	C	D	E	F	G	H	I	J	K	- 9 X	
Figure 13f Typical Daily summary with No-Load Adjustment												
1	Calibration Formulas											
2	601.908 Ideal Formula Number											
3	639.613 Aug-18											
4	683.630 Sep-15											
5	706.915 Jun 20.03											
6	currently used											
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
4905	05/08/2003 17:08:10	32.73644	0	0	32.736	845.077	1.878					
4906	05/08/2003 17:08:18	32.06952	0	0	32.070	824.812	1.833					
4907	05/08/2003 17:08:26	32.83171	0	0	32.832	847.972	1.884					
4908	05/08/2003 17:08:34	29.09694	0	0	29.097	734.491	1.632					
4909	05/08/2003 17:08:42	26.23870	0	0	26.239	647.643	1.439					
4910	05/08/2003 17:08:50	22.02756	0	0	22.028	519.687	1.155					
4911	05/08/2003 17:08:58	15.75848	0	0	15.758	329.201	0.732					
4912	05/08/2003 17:09:06	11.45207	0	0	11.452	198.351	0.441					
4913	05/08/2003 17:09:14	7.88879	1	0								
4914	05/08/2003 17:09:22	7.75541	1	0								
4915	05/08/2003 17:09:30	7.73635	1	0								
4916	05/08/2003 17:09:38	8.07934	1	0								
4917	05/08/2003 17:09:46	7.66013	1	0								
4918	05/08/2003 17:09:54	7.77446	1	0								
4919	05/08/2003 17:10:02	0.00004	1	0								
4920												
4921												
4922												
<div>Full Screen Close Full Screen</div> <div>startTrendReader Standar...Microsoft Excel - Figu...10:53 AM</div>												

Figure 13f Daily Summary Showing Impact of No-Load Adjustment due to dirt build up at 3:20pm

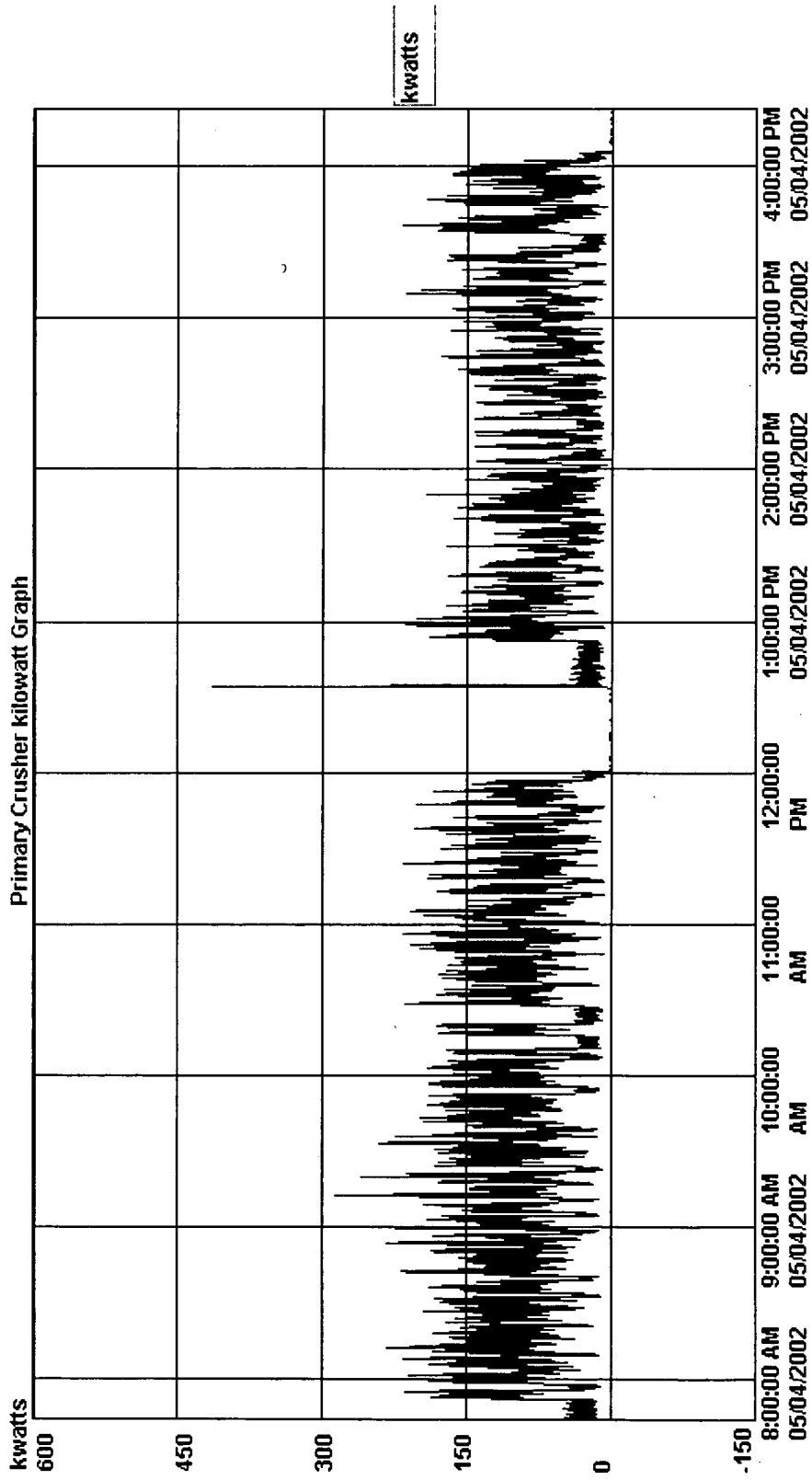


Figure 14: Typical Primary Crusher Graph

FIGURE 15

Typical Primary Crusher kwatt report April 5, 2002

No load kwatt =	30.000 kwatts
Start up kwatts =	410.000 kwatts
Time No-Load kwatt	144.400 minutes
	2.407 hours
Time Start-Up kwatts	0.133 minutes
	0.002 hours
Total production time 10 hrs 23 min	10.383 hours
	7.974 hours actual
Total tonnes on Primary Conveyor Belt Scale	7713.0 tonnes
Average kwatt for day	91.785
Total kwatts crushing	731.906 kwatts
Total te/kwatt crushed	10.538 te/kwatt

Time of data Reading	Actual Kwatt Reading	Count No-Load	Count Over-load	Conditioned kwatt
05/04/2002 7:24:33	0.811	1	0	
05/04/2002 7:24:41	4.358	1	0	
05/04/2002 7:24:49	1.520	1	0	
05/04/2002 7:24:57	0.811	1	0	
05/04/2002 7:25:05	0.811	1	0	
05/04/2002 7:25:13	2.027	1	0	
05/04/2002 7:25:21	2.939	1	0	
05/04/2002 7:25:29	3.851	1	0	
05/04/2002 7:25:37	2.230	1	0	
05/04/2002 7:25:45	3.243	1	0	
05/04/2002 7:25:53	1.317	1	0	
05/04/2002 7:26:01	2.331	1	0	
05/04/2002 7:26:09	2.939	1	0	
05/04/2002 7:26:17	1.013	1	0	
05/04/2002 7:26:25	0.811	1	0	
05/04/2002 7:26:33	1.926	1	0	
05/04/2002 7:26:41	2.534	1	0	
05/04/2002 7:26:49	1.115	1	0	
05/04/2002 7:26:57	0.811	1	0	
05/04/2002 7:27:05	0.811	1	0	
05/04/2002 7:27:13	0.811	1	0	
05/04/2002 7:27:21	0.811	1	0	
05/04/2002 7:27:29	4.155	1	0	
05/04/2002 7:27:37	0.709	1	0	
05/04/2002 7:27:45	0.811	1	0	
05/04/2002 7:27:53	0.811	1	0	
05/04/2002 7:28:01	0.709	1	0	
05/04/2002 7:28:09	0.709	1	0	
05/04/2002 7:28:17	3.952	1	0	
05/04/2002 7:28:25	2.736	1	0	
05/04/2002 7:28:33	0.811	1	0	
05/04/2002 7:28:41	389.056	0	0	389.056
05/04/2002 7:28:49	53.306	0	0	53.306
05/04/2002 7:28:57	55.739	0	0	55.739
05/04/2002 7:29:05	51.178	0	0	51.178
05/04/2002 7:29:13	41.247	0	0	41.247

TYPICAL QUARRY_Kwatts Tonnage report Apr 3, 2003 With TEMPERATURE Effect

[illegible]

Figure 21 PDA & Analog Data Logger wiring hook-up

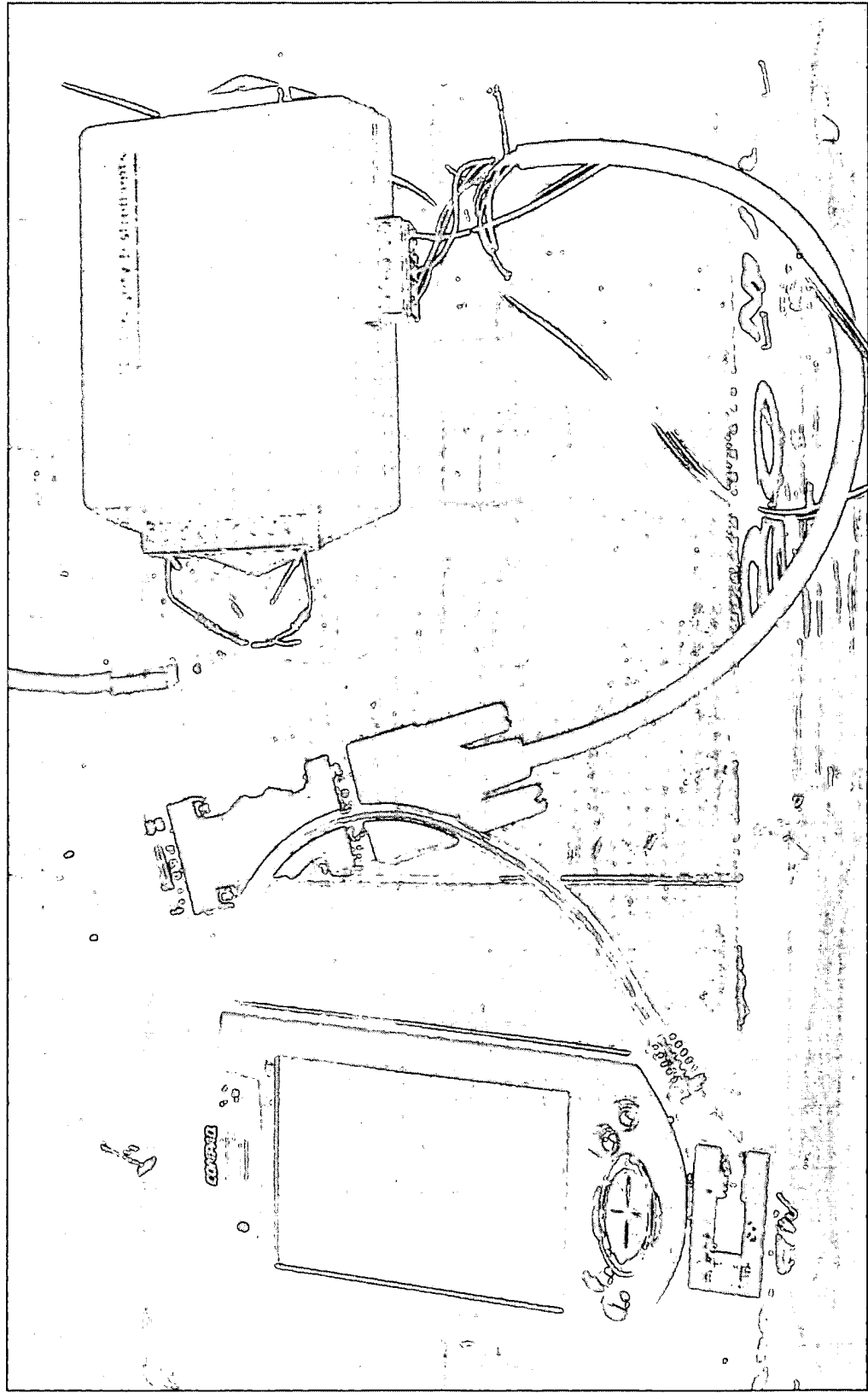
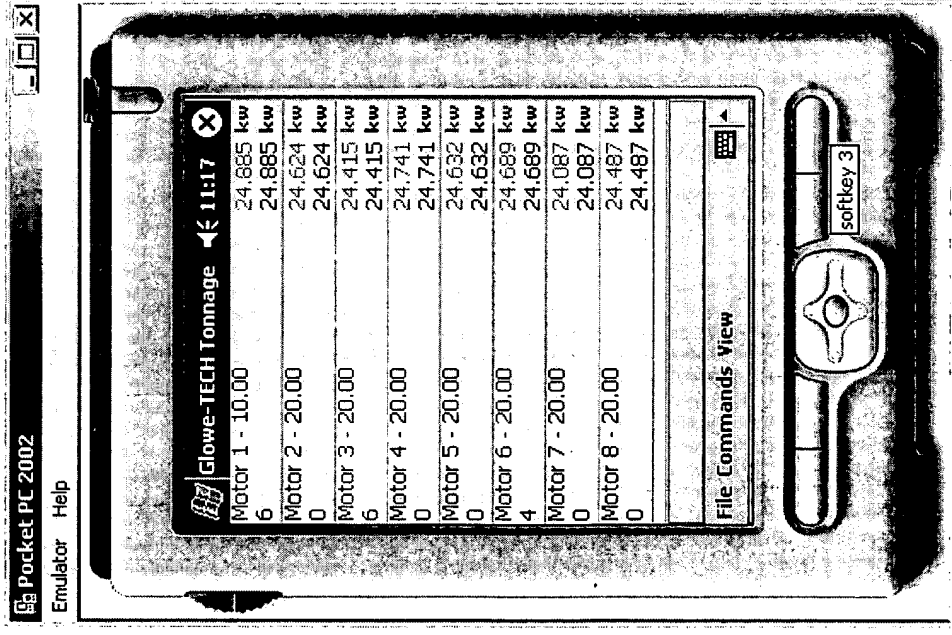
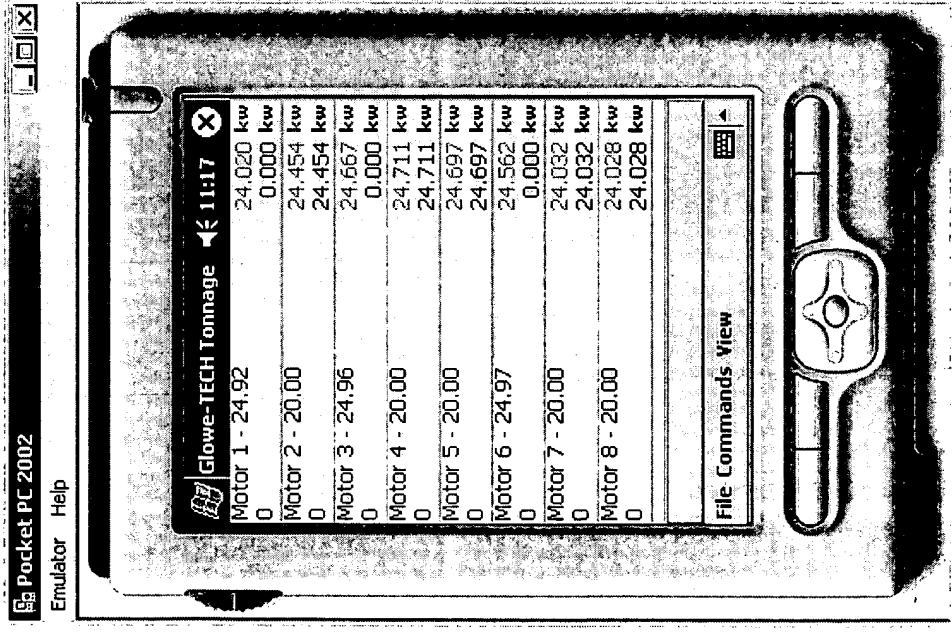


Figure 23 PDA Tonnage Analyzer



- Motor view with kwatt values and a zero test in progress for motors 1, 3, and 6. Zero test will confirm no-load operating conditions and any changes will be automatically incorporated in calibration formula.

Figure 24 PDA Tonnage Analyzer



- Motor view with kwatt values and finished zero tests with new No-load values for motors 1, 3, and 6. All future tonnage conversions will be based on new No-Load values.

Figure 25 PDA Tonnage Analyzer

- Daily Summary Report including Total tonnage, Production time, No-Load time and new No-load calibration value.

110903 124325.txt - Notepad

File Edit Format Help

Start 11/09/03 12:27:28
End 11/09/03 12:43:22

11/09/03

	Nom	Te Total	Temps de Production	Temps de NoLoad	NoLoad
CV 212		58.26376	00:14:12	00:01:40	24.91902
CV 213		57.84868	00:14:04	00:01:48	24.90978
CV 214		58.58227	00:14:16	00:01:36	24.95023

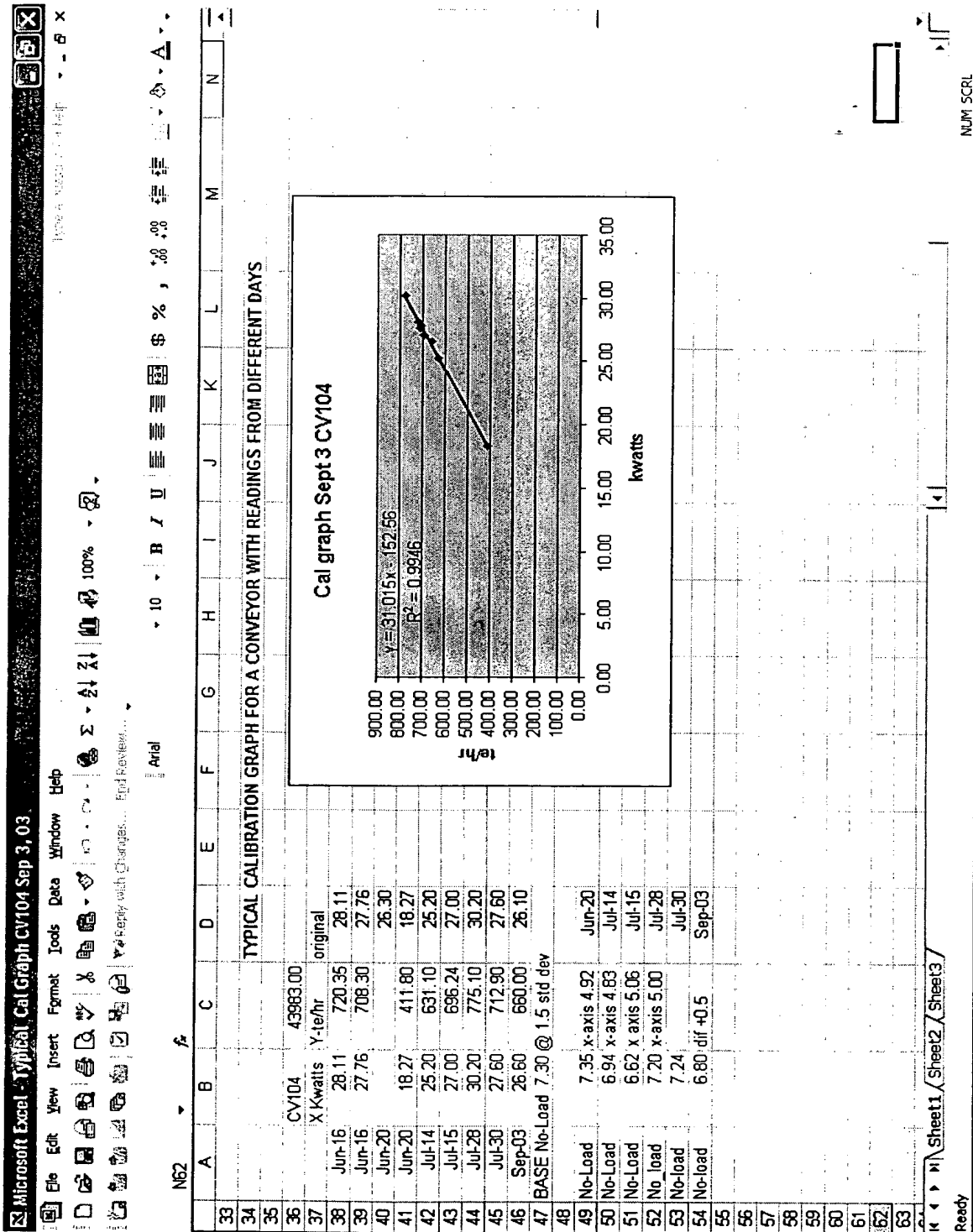


Figure 13c

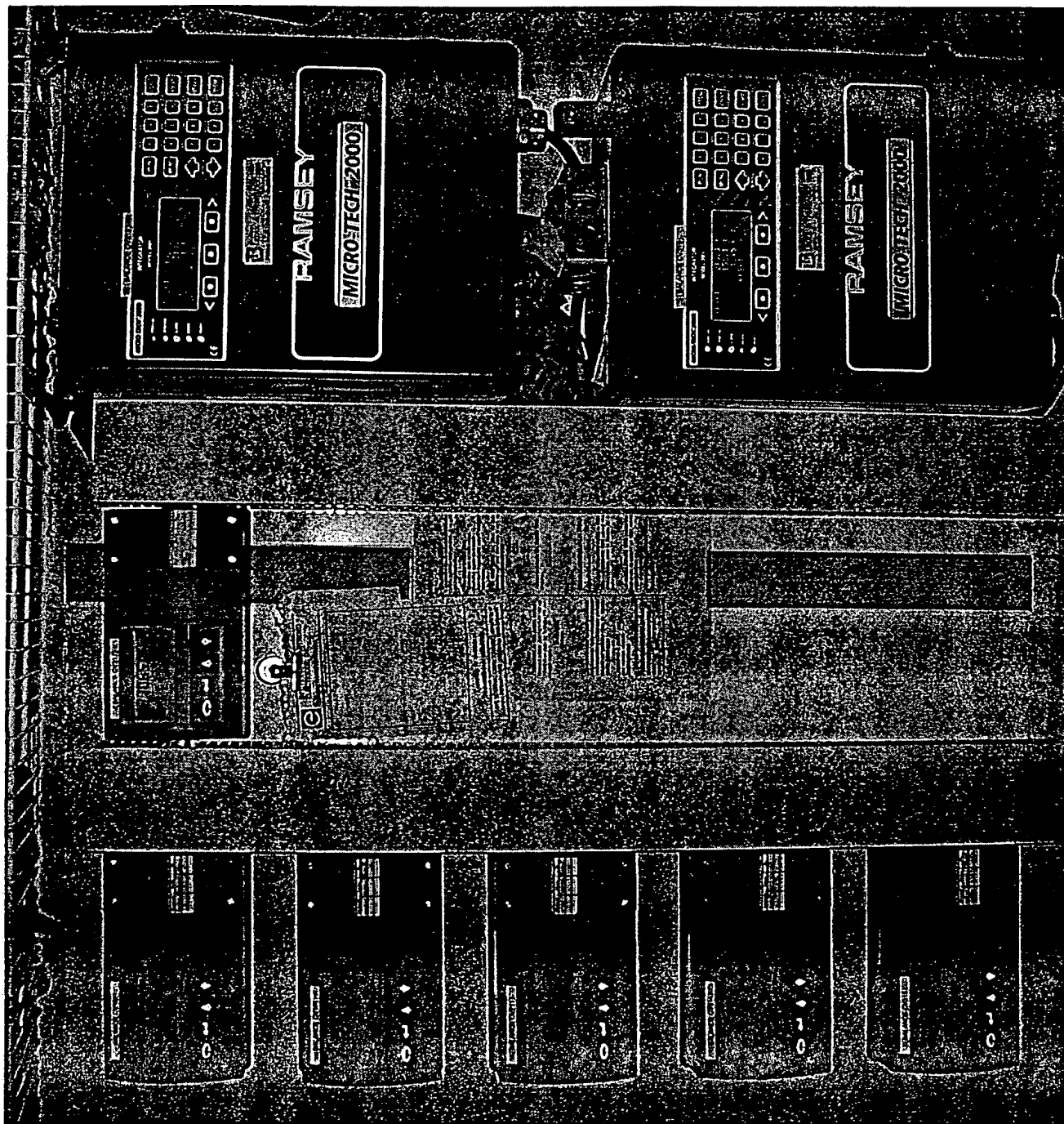


Figure 16a

Glowe-Tech Tonnage Analyzer

- Real Time Program showing total tonnage, tph, production time, and No-Load time values

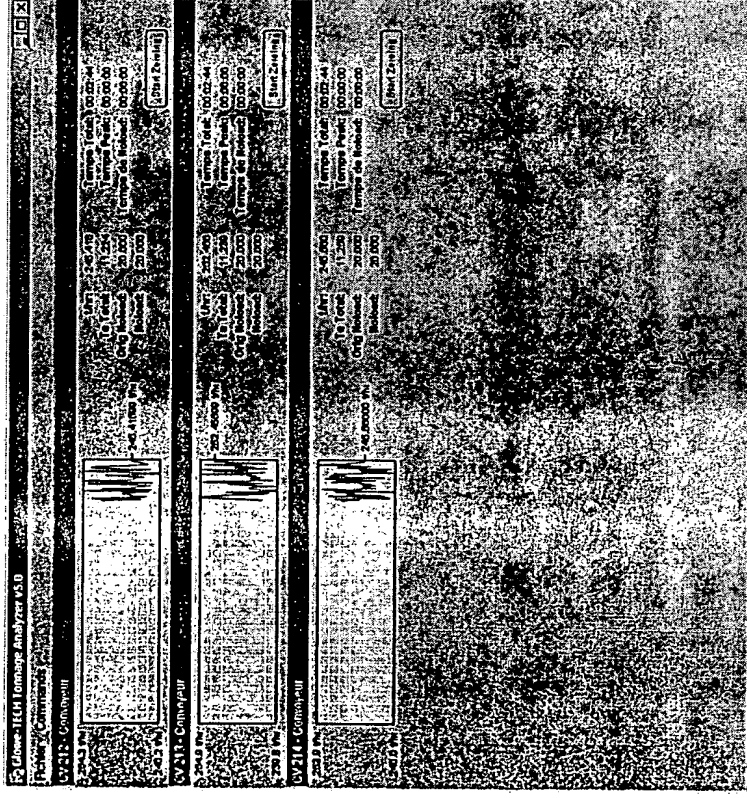


Figure 17

Glowe-Tech Tonnage Analyzer

- Zero test activated as shown in Red

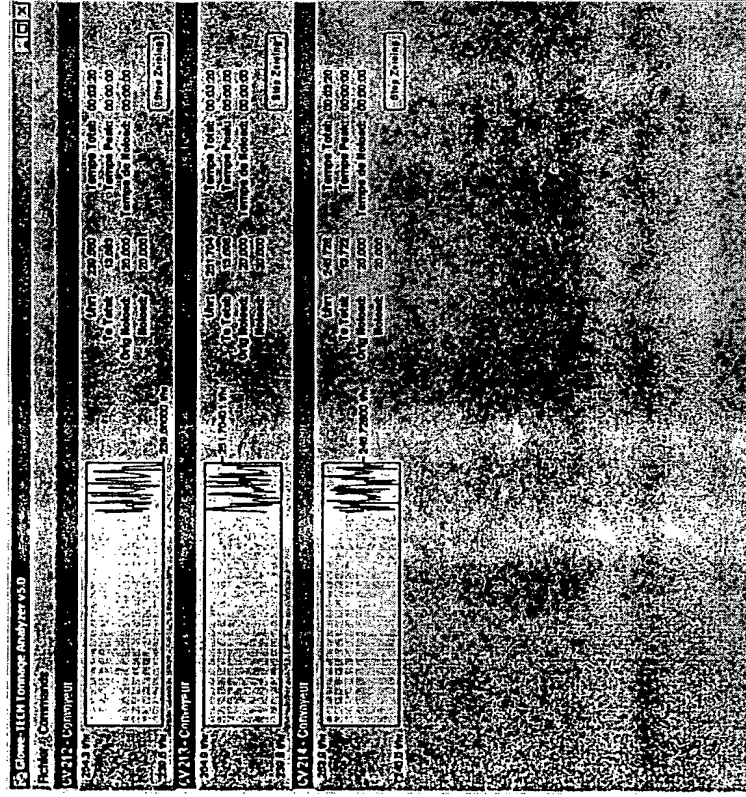


Figure 19

Glowe-Tech Tonnage Analyzer

- Running with tonnage values totaled and shown as tph, updated every second.

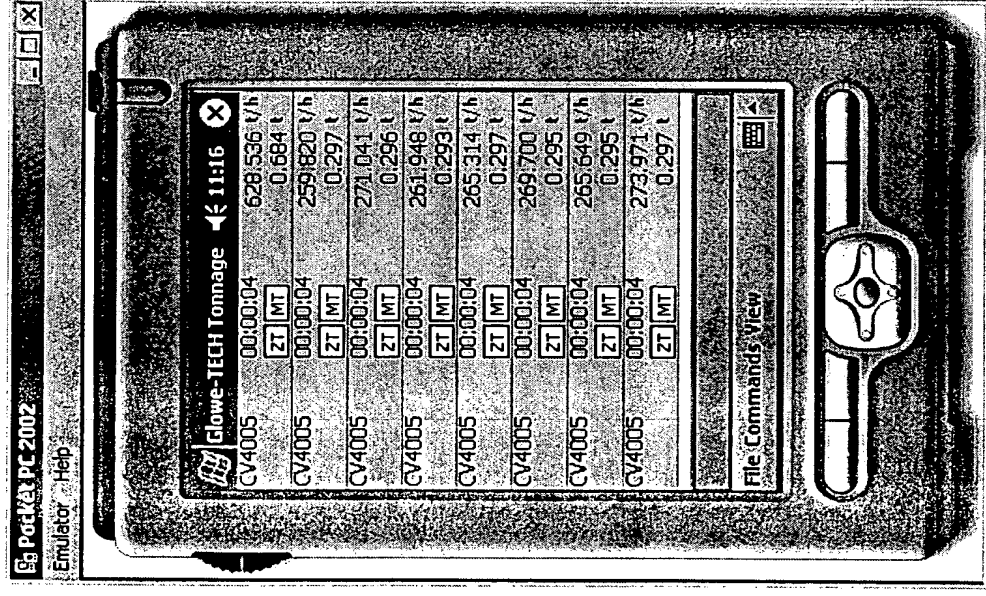


Figure 22

Glowe-Tech Tonnage Analyzer

- Program startup with graphic display of last 20 minutes of data in Real Time.

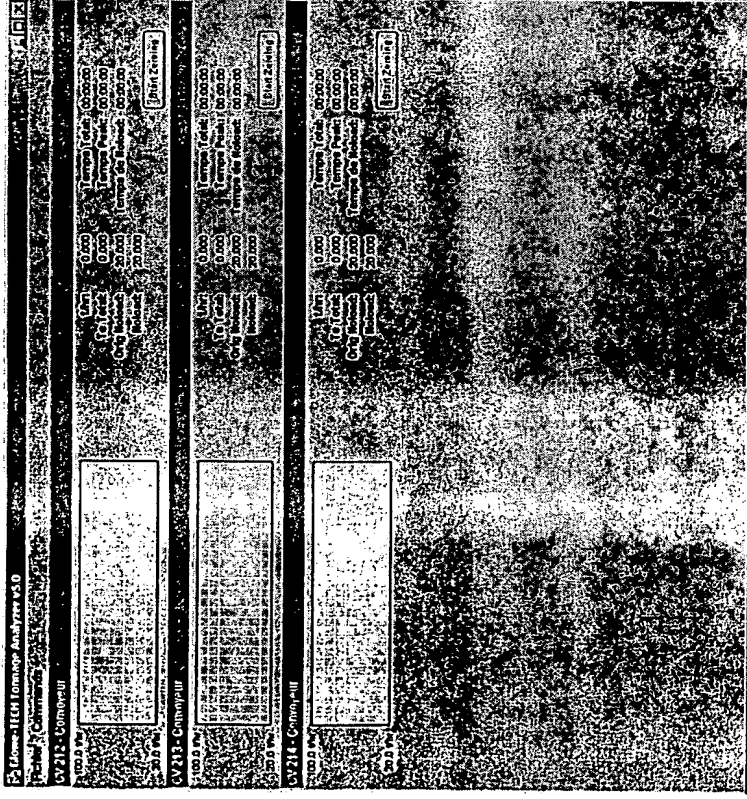


Figure 20

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